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U.S.Department of Transportation
Federal Highway Administration

Sharing Success Stories from the
Turner-Fairbank Highway Research Center

March 2001

Supplying the DEMAnD for Safety

In the beginning was the lowly radio. Then the cell phone was born and now, close upon its heels, in-vehicle navigation systems are clamoring for our attention. How much distraction can one driver take? In response to the ongoing DEMAnD for improved driver safety, FHWA's Human Centered Systems researchers, in conjunction with the Virginia Tech Transportation Institute, have developed a prototype software package that predicts and evaluates the level of distraction that in-vehicle navigation and display systems will cause drivers. DEMAnD (Design Evaluation and Model of Attention Demand) is intended for use by in-vehicle navigation system designers, such as those working in the automotive and software industries. A group of system designers and researchers is assessing the software and will provide feedback on completing the program. [Joe Moyer, 202-493-3370, or Chris Monk, 202-493-3382]

And the Winner Is…

For the second year in a row, the Office of Infrastructure R&D can claim the FHWA Engineer of the Year as one of its own. Hamid Ghasemi was recognized on February 22 by the Society of Professional Engineers at an awards ceremony at the Ft. Myer Officers' Club. Hamid's many accomplishments include serving as a member of the Highway Innovative Technology Evaluation Center's seismic isolation evaluation panel, where he developed a plan for testing 11 seismic isolation devices for highway bridges. He also authored the majority of the project's reports, with the innovative findings now being used by bridge engineers around the world. And in 1999, Hamid took his seismic expertise on the road, providing assistance with the earthquake recovery efforts in Turkey.

Congratulations, Hamid!

Traffic Control: The Next Generation

Boldly going where no traffic control system has ever ventured before, the new TrEPS (Traffic Estimation and Prediction System) model provides real-time evaluation of traffic control strategies for traffic management centers. The model's evaluation and planning applications will allow highway agencies to be more proactive in their traffic management. The California Department of Transportation is currently field testing the prototype, with testing expected to run until 2002. [Henry Lieu, 202-493-3273]

Even as TrEPS makes its debut, however, FHWA staff are hard at work planning for a new traffic simulator model. The Office of Operations R&D held a workshop last summer to solicit insight from stakeholders as to what they are seeking in the next generation of traffic simulation. Attendees from government, industry, and academia shared their visions for the future, with key recommendations including designing a simulation model with ITS modeling capability and an open architecture that supports interfaces with other tools.
[Gene McHale, 202-493-3275]

Ramp Metering: It's the Real Thing

For state-of-the-art design, simulation, and real-time operation of freeway ramp meters, check out RMS 2000, the Ramp Metering Software. It allows design and off-line benefit testing before

deployment occurs, as well as operation of the software in a traffic management center. Laboratory testing of the software has been completed, and the product is expected to be ready to roll this summer.
[Debbie Curtis, 202-493-3267]

The Ultra Concrete Experience

Deep in the heart of the TFHRC's Structures Laboratory, the next generation of high-performance concrete is stirring. The lab is testing two girders fabricated from a newly developed reactive powder concrete. This new material is often referred to as ultra-high-performance concrete (U-HPC), since it typically reaches a compressive strength more than twice that of any HPC used to date for U.S. bridge construction. Testing should be completed this spring, with the first application of U-HPC in a bridge design coming as soon as the end of this year.
[Joey Hartmann, 202-493-3059]

Not Your Father's Asphalt Pavement Mix

You're driving along, admiring the splendour of the Washington Monument, and then you hit…a rut in the road. To be more precise, almost 3 inches of rutting. Although recently reconstructed, the pavement at the intersection of 15th Street and Constitution Avenue in Washington had rapidly deteriorated, due to a heavy load of tour buses, concrete ready-mix trucks, Metro buses, and aggregate haul trucks. To fix the problem, the Eastern Federal Lands Office called on Turner-Fairbank's Asphalt Pavement Team for assistance. The team met with the local contractor and the Park Service last summer to evaluate the pavement mix design and identify a modified asphalt that would produce better results. After the team selected a Dupont product known as Evaloy, the new pavement was laid in December 2000. So with clear and smooth sailing to the monument…feel free to take that drive.
[Tom Harman, 202-493-3072]

Get Into the QuickZone

Have you visited the QuickZone yet? Beta testing has begun of the new work zone delay estimation software, which was developed by the Operations and Intelligent Transportation Systems Research Team in cooperation with Mitretek Systems. Version 0.91 of the software was demonstrated at the TRB Annual Meeting in January, with Version 0.99 due to be released in April. Version 0.91 is currently available on the Turner-Fairbank Web site at www.tfhrc.gov/its/quickzon.htm for testing.

The software allows highway agencies and contractors to compare the traffic impacts for work zone mitigation strategies and estimate the costs associated with these impacts. A user need only have Microsoft Excel 97 or higher running on a Windows-based PC to use the QuickZone application.
[Debbie Curtis, 202-493-3267]

Say Bonjour

TFHRC got an infusion of French flavor in January, as a delegation from France's Laboratoire Central des Ponts et Chaussees (LCPC) toured the pavement labs and participated in a workshop on pavement infrastructure issues. The workshop, which was a follow-up to LCPC Director Georges Pilot's June 2000 visit to Turner-Fairbank, featured discussions on the state-of-the-practice for asphalt and Portland cement concrete pavements, long-term pavement performance program activities, pavement management systems, and pavement applications of nondestructive evaluation techniques for bridges. An outgrowth of the workshop is that TFHRC and the LCPC are now considering future collaboration on research and deployment activities.
[Paul Teng, 202-493-3022, or Bob Kelly, 202-493-3469]

People and Places

As Good as It Gets

Let's give a hand to our coworkers who were recently honored as part of former Secretary Slater's "Find the Good and Praise It" initiative. **Mike Trentacoste** and **Carol Tan Esse** were recognized for their membership in the Pedestrian Bicycle Team, which has done outstanding work in promoting bicycle and pedestrian safety. **Judy Dakin**, meanwhile, was honored for her exceptional support of the National Transportation Week team effort.

A Fond Farewell

After 42 years of service to FHWA, **Sam Tignor** bid adieu to his colleagues at Turner-Fairbank in January. Over the course of a career that spanned the start and completion of the Interstate Highway System, Sam conducted research on everything from winter driving safety to intelligent vehicle systems. As he leaves to continue his work in different ways in retirement, we wish him well!